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*thisted* **THE UNTRIED APPROACH**  
**TO THE**  
**PALESTINE PROBLEM**

**By Walter Clay Lowdermilk**

*Dr. Lowdermilk, the author of "Palestine, Land of Promise" and initiator of the Jordan Valley Authority plan, is one of America's most famous soil conservationists. He has just retired from his post as Assistant Chief of the United States Soil Conservation Service. He sets forth here his constructive and basic approach to the ills that beset the Middle East.*

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THE saying "westward the course of Empire took its way" only hides the tragic fact that mankind has tended always to use up resources, devastate the forests and waste fertile fields. As soil erosion has been allowed to damage old lands, peoples have constantly moved to new ones.

But today there are no more continents to discover, to explore and to exploit. All lands except possibly some of Antarctica have been taken into possession. The frontier of new land, with only minor exceptions, is gone and gone forever. In its place, however, is a new frontier—the improvement and conservation of lands under use and the reclamation of damaged and misused lands. Here is a challenge to the United Nations as great as the challenge of war. In a very real sense, civilization is on trial for its waste of the limited areas of good land that must supply food as the basis of peace within and among nations. If but a fraction of the amounts spent for war and destruction could be spent for reclamation, great numbers of TVAs could be established in strategic areas throughout the world where vast water resources flow unused and irrigable lands remain parched while peoples are discouraged and undernourished or actually starving.

As a result of society's failure to understand the basic importance of proper land use, the application of modern agricultural science and technology is not yet keeping pace with land depletion around the world. It is profoundly significant, therefore, that in Palestine, in a region depleted of forests and grasses and soils, where ruins of great works bespeak former populous and powerful peoples, but where now general decadence and poverty reign, Jewish agricultural settlements are reversing the long trend of wasteful land decline. On the 7 per

cent of the land, which is all that the Jews have thus far been permitted to redeem, the colonists have done the finest reclamation of old lands that I have seen in four continents, indeed the finest reclamation work of modern times. I am convinced, after studying the relation of peoples to their lands in twenty-six different countries, that these colonists have done something new under the sun; they are working out a lasting adjustment of a people to their land in which all peoples of the world should be interested. By a balanced combination of scientific agriculture and industry, and a voluntary co-operative social system, they have managed to achieve a European standard of living in the midst of the backward, depressed subsistence economy of the Middle East. Their approach to the problem of industrializing subsistence agrarian economics promises a new day not only for Palestine and for the Middle East, but for the world at large.

Palestine in ancient times played a vital role in providing the ethics and ideals that have guided our western civilization toward democratic goals. Palestine, rejuvenated by the technical and creative ability of its Jewish inhabitants and their highly developed social consciousness, may now be the demonstration which will succeed in bringing this backward and depressed area on the eastern shore of the Mediterranean to a more abundant life. In no other place in the world is there the setting, the drive, and the possibility of demonstrating how the decline of misused and damaged lands may be reversed by the production of abundance through devotion and love of the land and full and scientific use of the resources of land and water, power and minerals. Such full and scientific use of resources is made particularly feasible by the fact that the valley of the Jordan River and the maritime plain of Palestine offer a combination and concentration of natural features that set the stage for one of the most unique and far-reaching reclamation projects on earth, comparable to the Tennessee Valley Authority of the United States in scope and function.

IT WAS while making an airplane survey of Palestine in 1939 that I was struck by the possibility of a great power project based upon the extraordinary difference in altitudes between the deep rift of the Jordan Valley and the Mediterranean Sea only a few tens of miles away. Palestine's two chief economic needs are supplies of water for irrigated agriculture and power for industrial development. The JVA would supply both. It would divert the sweet waters of the Upper Jordan and its tributaries into a network of irrigation canals, while, in order to compensate the Dead Sea for the loss of these waters, it would introduce sea water from the Mediterranean starting at a point near Haifa and conduct it through a tunnel and open canals down the Jordan depression to the Dead Sea. As this sea water dropped into the Jordan rift, there would be almost 1,200 feet of effective fall for the development of hydroelectric power.

The original sketch of the Jordan Valley Authority appeared in 1944 in my little book, *Palestine, Land of Promise*. The idea was not allowed to remain a mere sketch, nor—though the war was still raging—were the many practical problems involved in so important an engineering project, allowed to remain unanswered. While the book was still in manuscript form, I sent the first draft of the chapter on the JVA to Dr. Emanuel Neumann, and proposed the formation of a commission of experts to study the project, to engineer and to prepare a detailed scheme. With the aid of David Lilienthal, then head of the Tennessee Valley Authority, and with the expert advice of the late Colonel Theodore B. Parker, Chief Engineer of TVA, the necessary engineering studies for the projected JVA were outlined and technical personnel recommended for the work. A Commission on Palestine Surveys was set up under Dr. Neumann's direction to gather a body of experts, engage the necessary technicians, and organize the engineering investigations both in America and Palestine.

James B. Hays, formerly Project Manager of the TVA at Bristol, Tennessee, and an irrigation and power engineer of over thirty years experience, became the Commission's Chief Engineer, and was assisted by a distinguished volunteer Engineering Consulting Board. Some of America's foremost engineers have served on this Consulting Board: Dr. Abel Wolman of Johns Hopkins University, the chairman, who had served for years as Chairman of the National Water Resources Board of the U. S.; Harry A. Bashore, former U. S. Commissioner of Reclamation; Col. Theodore B. Parker, who upon his death was succeeded by C. E. Blee, now Chief Engineer of the TVA; John L. Savage, for many years Chief Designing Engineer of the Bureau of Reclamation and one of the world's greatest power and irrigation engineers.

Mr. Hays and his staff worked over eighteen months in the United States and then spent six months investigating conditions in Palestine at first hand. Returning from Palestine in April 1945, Mr. Hays was able to state his general conclusions with a high degree of certainty: A Jordan Valley Authority scheme of irrigation and hydro-electric power development was designed to be carried out in eight successive stages; it would provide irrigation for at least 750,000 acres (the area now under irrigation is only 100,000 acres); it would furnish eventually, more than 800 million kilowatt hours of hydro-electric energy per annum; it would make possible the absorption of up to three million additional population; it would cost \$250,000,000—a reasonable investment, particularly since the project would be self-liquidating in a fifty-year period, at a 3 per cent rate of interest, which is regarded as quite satisfactory in the case of American reclamation projects.

After the preliminary report of April 1945, Mr. Hays continued his studies. His large report dated January 1946, and presented to the members of the Anglo-American Committee of Inquiry, contains new data on duty of water, power requirements, capital costs, annual operation and main-

tenance costs of the various stages. In the considered and expert opinion of the Board of Consulting Engineers, the Jordan Valley Authority scheme has been proved to be an engineering project which is in no way unusual or peculiar but which is paralleled by extensive undertakings in the American west and southwest and in other arid countries. Mr. Savage, answering the (British) Palestine Administration's criticism in 1946, wrote: "*The proposed irrigation and hydroelectric project is not unique or exceptional in any respect. Such a project located in a similar area and climate in the United States, as for example, in Southern California, would have been developed more than a generation ago. These major construction features, such as dams, tunnels, canals, power plants and pumping plants would be considered ordinary features in the United States, and in other countries, where such works have been developed.*"

Like California, Palestine has more land suitable to irrigation than it has water for irrigation; hence no marginal lands need be considered in the JVA's plans. As in the case of California, too, Palestine's power and irrigation projects could adequately be protected from possible earthquake effects by use of standard techniques in designing. It is interesting to note that water use and costs per unit in Palestine to farmers would be comparable to conditions in California's Imperial and Central Valleys.

IN THE light of the crucial changes about to take place in Palestine's political and economic status as a result of the forthcoming termination of the British Mandate and inauguration of the plan adopted by the United Nations General Assembly last November, the Jordan Valley Authority is now of more timely significance than ever. According to the United Nations' plan, by October, 1948, two independent states are to be set up, one Arab and one Jewish, bound by an economic union. For the Jewish people this decision opens the way for the urgently needed immediate mass immigration of many, many hundreds of thousands, and—

as a corollary—makes particularly pressing the question of the irrigation of Palestine's southern desert, the Negeb, which is to form almost two-thirds of the area of the projected Jewish State. The eight stages of the JVA engineering scheme are based on the principle of supplying lands nearest the source of water supply first and on expanding the irrigated area as additional water sources are developed. In this step-by-step development stage eight is devoted to the irrigation of the Negeb by collected surplus of flood waters brought from the rivers, wadis and springs of the north. The plan, nevertheless, has a certain amount of flexibility that would permit the earlier irrigation of parts of the Negeb at somewhat higher unit costs.

Hence, energetic execution of the JVA holds the key to further general development of Palestine and, specifically, to fertilization of this southern desert area. But the JVA holds the key to more than that: It can serve to assure the economic unity which is a basic provision of the plan for a partitioned Palestine adopted by the United Nations. The Majority Report of the UN Investigating Committee, upon which the plan is based, states specifically that one of the objectives of the economic union of the two states shall be "joint economic development, especially in respect of irrigation, land reclamation and soil conservation"—this to be carried out under a Joint Economic Board, consisting of three representatives each of the Jewish and Arab States and three foreign members appointed by the Economic and Social Council of the United Nations. There is no better way to make the UN plan for Palestine work than by swift inauguration of joint Arab-Jewish development, under an over-all JVA scheme, of irrigation, land reclamation and soil conservation. Towards this end the influence of the UN and the assistance—financial and technical—of our country must work.

Partition without economic union would have violated the geographic unity of the country, and made the irrigation and hydro-electric power de-



velopment of the proposed Jordan Valley Authority very difficult of accomplishment. But the wise provisions for economic union just cited will permit and favor full development of the unique features and unusual resources of the country in the interests of Jews, Arabs and Christians. Joint reclamation projects for irrigated farming, power development and industry will raise the economic standards of both the Arab and Jewish States, and prove to be the safest and surest road for genuine cooperation between the two groups.

While construction of the entire project obviously depends on harmonious cooperation between the Jewish and Arab States of Palestine, a number of the stages need not wait upon such cooperation. Since the JVA was engineered in eight stages, some of which may be constructed independently of certain others, and some in conjunction with others, either state would be able to undertake those stages lying wholly within its own borders. Clearly, in the interests of the economy of money, effort and time, it is to be expected that such stages or parts of stages as are undertaken independently shall be so carried out as to fit into the project as a whole when arrangements for its completion are made.

**I**N VIEW of the pressing need of providing in the immediate future for several hundred thousand to a million or more of dispossessed persons looking forward to settlement in Palestine, it is well to see which stages of the Jordan Valley project can be carried out in the Jewish State without waiting for cooperation from the Arab State. Stage I, for example, includes the construction of a medium power dam on the headwaters of the Jordan River and the development by wells and pumping of underground waters and spring waters in the coastal plain. This water would be pumped with electrical or diesel power, and is estimated to be sufficient to irrigate about 190,000 acres lying chiefly in the coastal plain. Almost all of that area is to be in the Jewish State, but a small fraction of it lies in the Arab State in northwestern

Gallilee, and could also be made to benefit from new irrigation waters. Stage I could be completed within one or two years depending on how rapidly the work is pushed and would cost about \$25,000,000. The capital cost of providing water to these lands in Stage I is much lower than the average of capital costs of similar works in California.

Stages II and VI include the drainage of marshes and irrigation of the Huleh Basin of some 27,000 acres of fertile lands, as well as certain other works. The Huleh Basin may be reclaimed in its entirety and its highly productive possibilities realized.

Stage III includes among other things the irrigation of the Beisan Plain of some 40,000 acres. A good portion of this area may be provided with irrigation without cooperation of the Arab State. Stage IV includes the Mediterranean-Dead Sea hydroelectric power project which requires cooperation between the two states for its construction. Yet within the Jewish State a portion of this power project may be installed in which the first powerhouse may be used. The tail race from the turbines would be discharged into the Jordan River channel, leaving construction of the second powerhouse to some later time.

Stage V includes the construction of a dam to impound the Battauf Reservoir. It is reported that the partition line cuts through the reservoir site, leaving 40 per cent within the Jewish State. A portion of the reservoir could be made use of by construction of a more costly dam that would provide for limited storage of Jordan River waters. Diversion and construction of canals to the Battauf Reservoir and thence to lands of the Emek and coastal plain could be completed to supply about 90,000 acres with water. Only Stage VII and part of Stage VIII lie within the proposed Arab State.

Altogether, about 347,000 acres, approximately half of the 750,000 acres which are irrigable under the completed project, could be supplied with irrigation water in the Jewish State alone, without the cooperation of the Arab State.

Moreover, as reclamation projects make the des-

ert blossom again, to the advantage of the workers of the Jewish State, Arab farmers and village folk across the line may well be expected to want to share in similar benefits. The expression of such desires on their part would be the signal for the United Nations to arrange for cooperation in installing all remaining stages of the project to the greater benefit of the Arab and Jewish States.

The Jordan Valley Authority would not aid Palestine alone, or its Jews or Arabs alone. It would give an example to the backward Middle East, to stimulate other and greater valley projects in Iraq, Syria and Egypt. Irrigation and power projects in the Tigris-Euphrates Valley would enable ancient Mesopotamia, now Iraq, to support twenty to thirty million people in decency, instead of four million now mostly in dire poverty, for Iraq is the greatest undeveloped bread-basket in the world. A Jordan Valley Authority would serve as a training ground for engineers and specialists in agriculture, grazing management, conservation and forestry, equipping them to carry out other projects that are possible in the Middle East. These might well restore this region to a condition worthy of its glorious past, to the benefit of Arab, Christian and Jew.

There are few places in the world where mankind has a more favorable opportunity to adopt a constructive approach toward the problems of the common man, removing the basic causes of conflict and war by the creation of abundance for all. We can, through this approach, make the Middle East a blessed example rather than a breeding ground for strife.

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